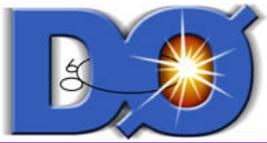
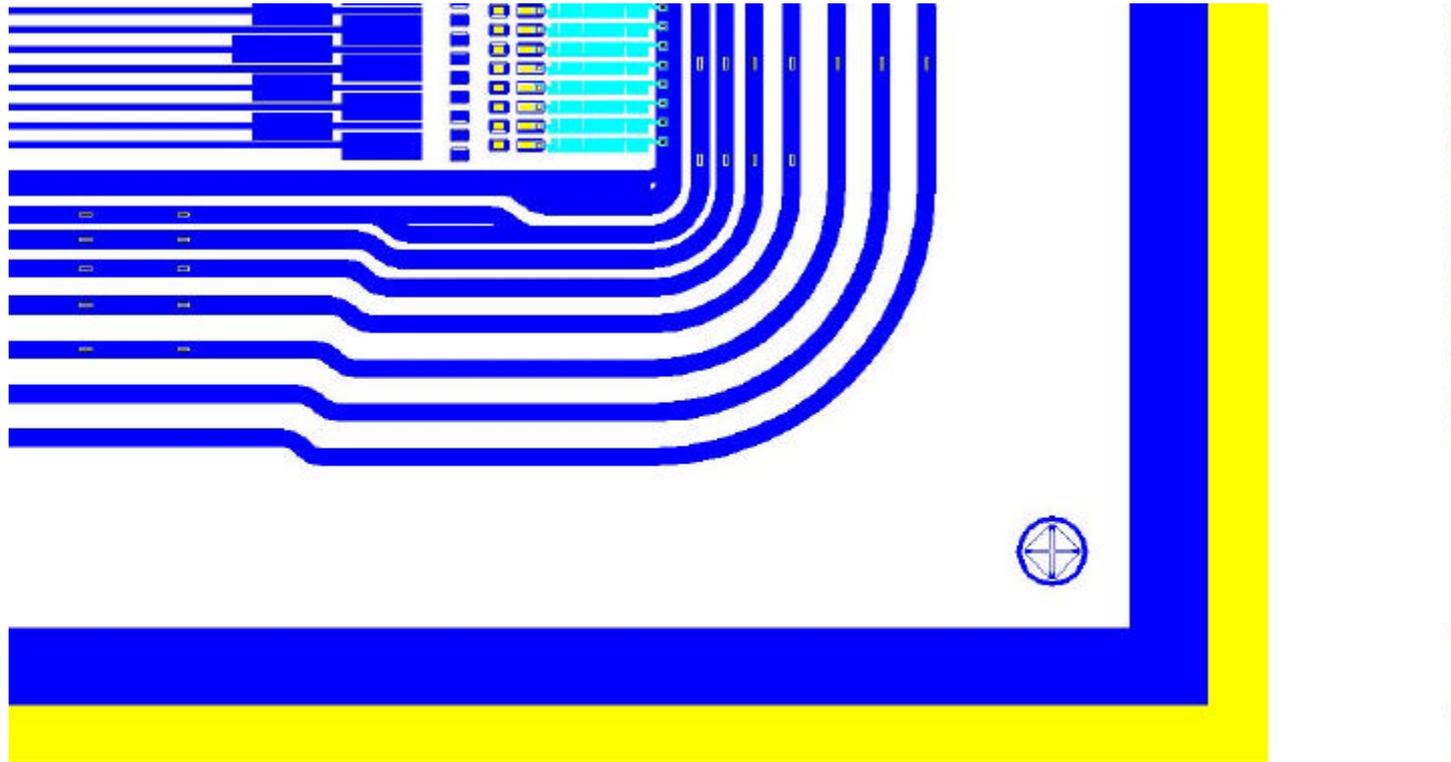


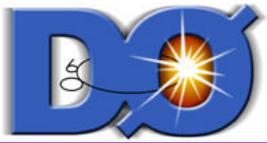
Outline

- L0 and L1 Sensors Masks
- Oxygenation
- Single side vs double side polished wafers
- Prototype Production Status
- Results
- Problems

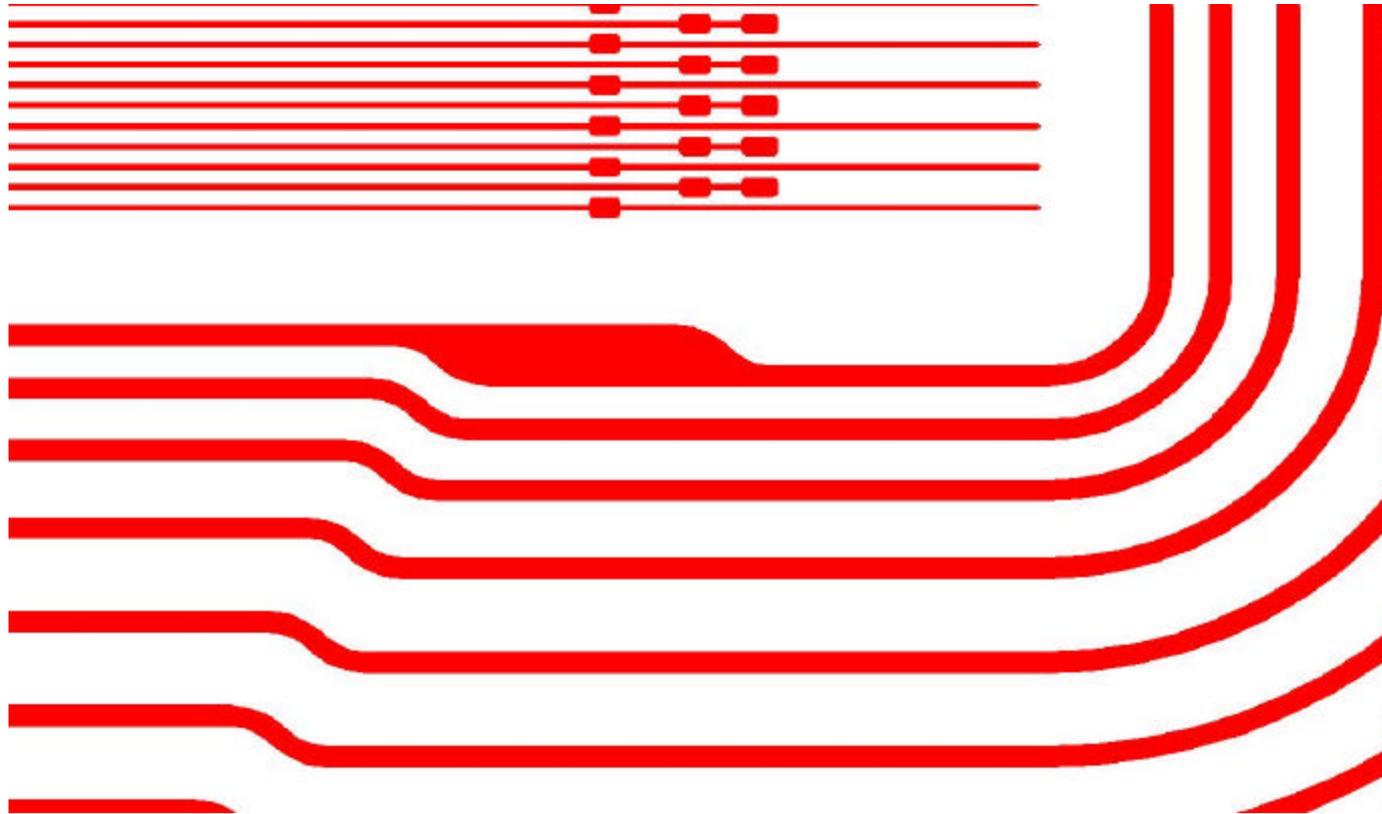


L0 and L1 Sensors Masks

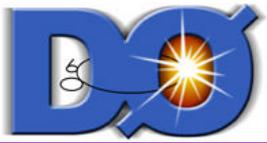




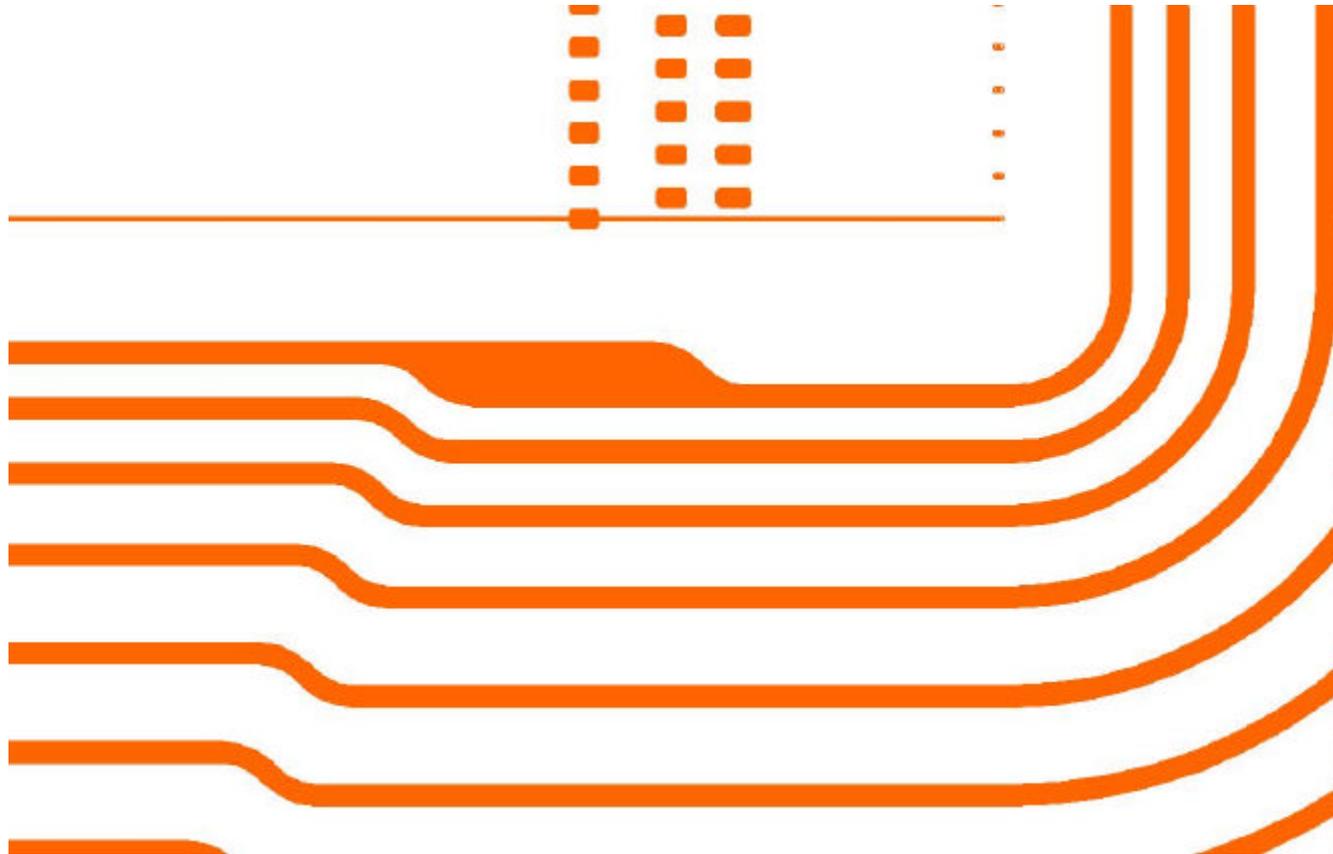
L0 and L1 Sensors Masks



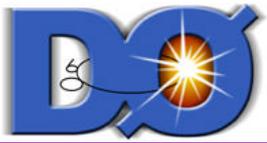
Standard P⁺-implant



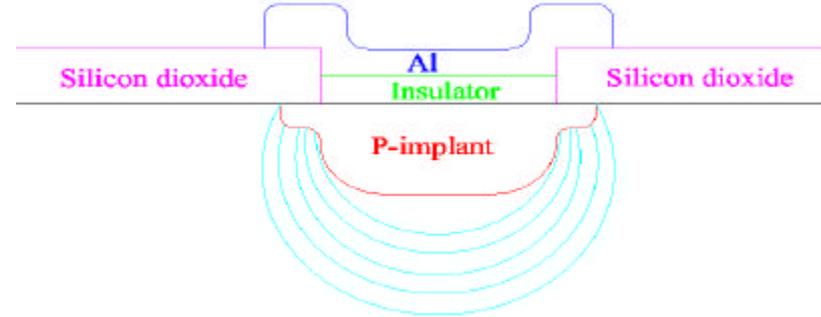
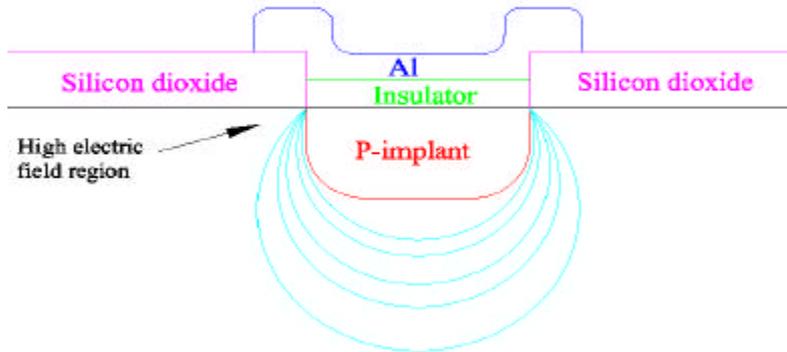
L0 and L1 Sensors Masks



Additional mask

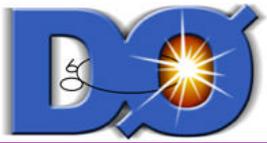


L0 and L1 Sensors Masks



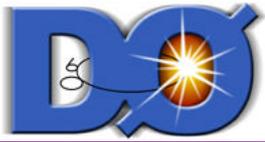
X and Y strip implantation cross-sections





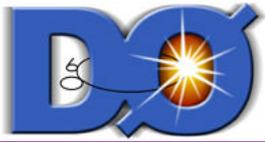
Oxygenation

- 25 wafers have been oxygenated up to
 $(1 \div 7) \cdot 10^{17} \text{ O/cm}^3$
Process up to 3 days.
- 5 wafers corrupted
- No any changes on depletion voltage and bias current.
- Yield is much lower
- Nice results after irradiation:
full depletion voltage twice lower in compare with non-oxygenated samples



Single vs double polished wafers

- 1 non-oxygenated wafer
- 5 oxygenated wafers
- No any difference, on bias current, number of defect, etc.
- Another full depletion voltage ($\sim 65\text{V}$), because of another resistivity ($4 \text{ k}\Omega\cdot\text{cm}$) and thickness ($350 \mu\text{m}$)

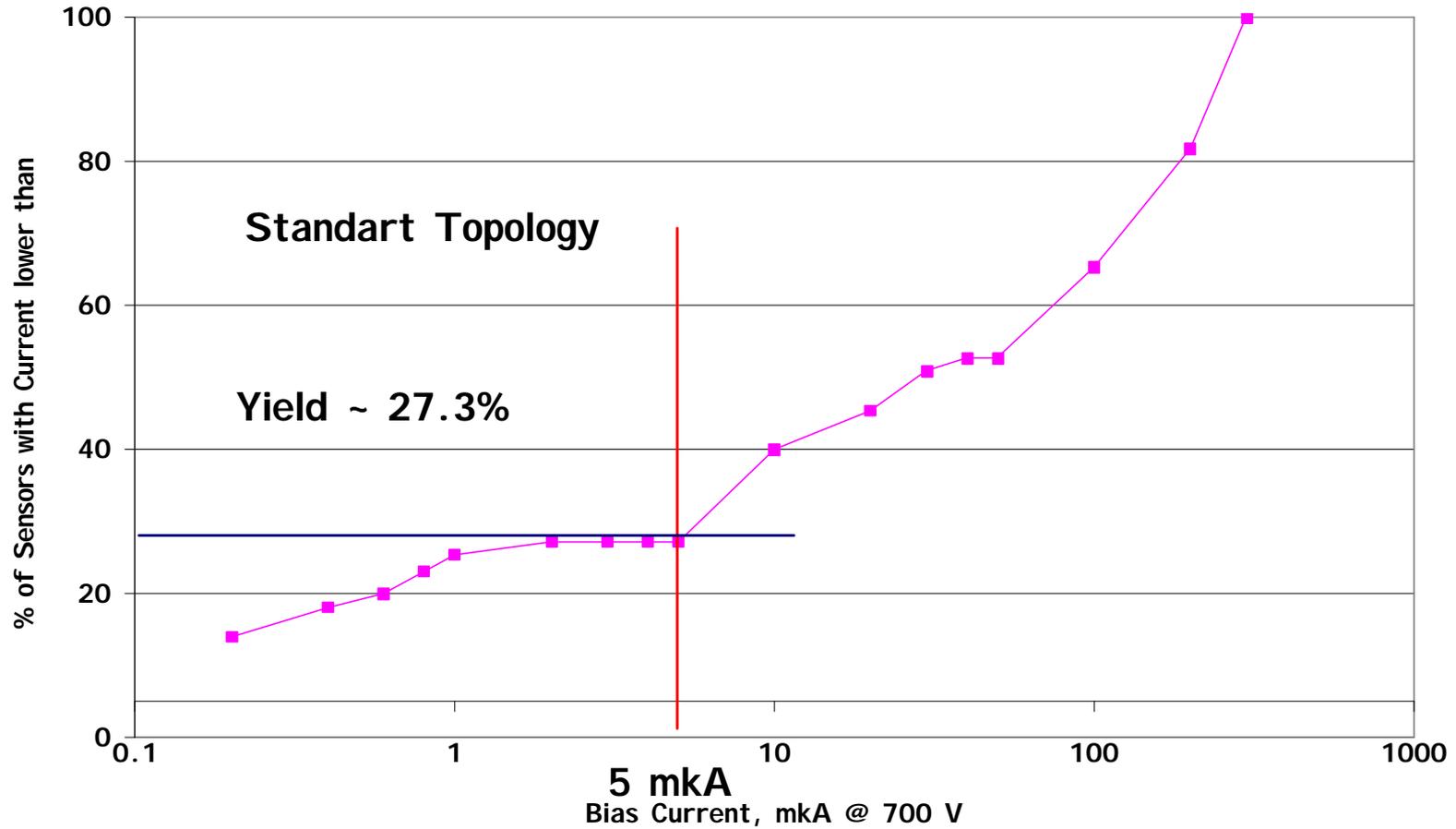


Prototype Production Status

- 56 L0 sensors (30 wafers)
- 17 L1 sensors (20 wafers)
- 5 wafers have been removed
- 25 wafers are in production now, we expect sensors by New Year:
- 13 New topology
- 12 standard topology
- Information for new L1 photo masks ready, masks could be produced in 2 – 3 weeks

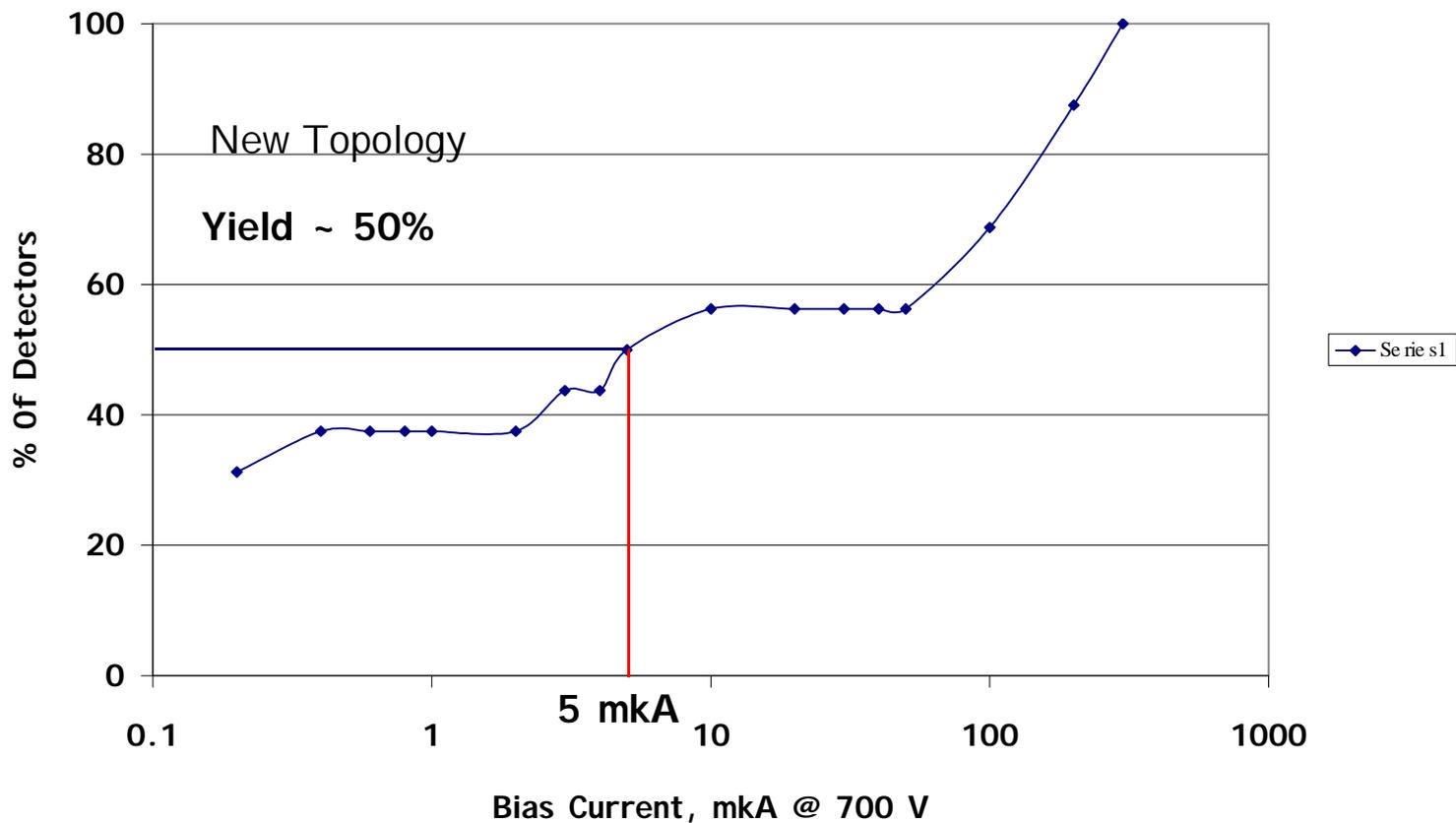


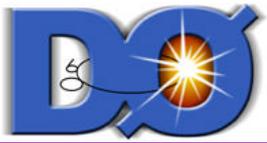
Results



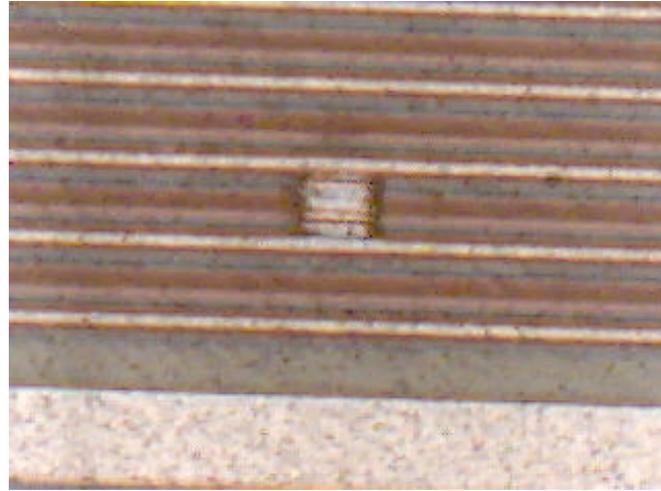
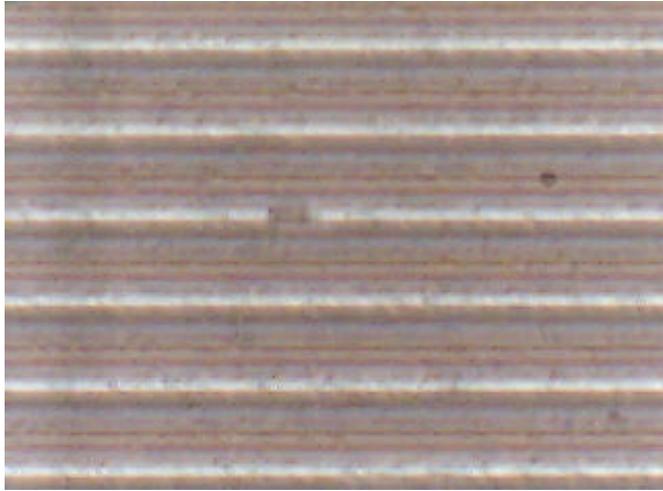


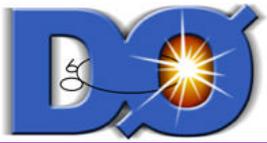
Results



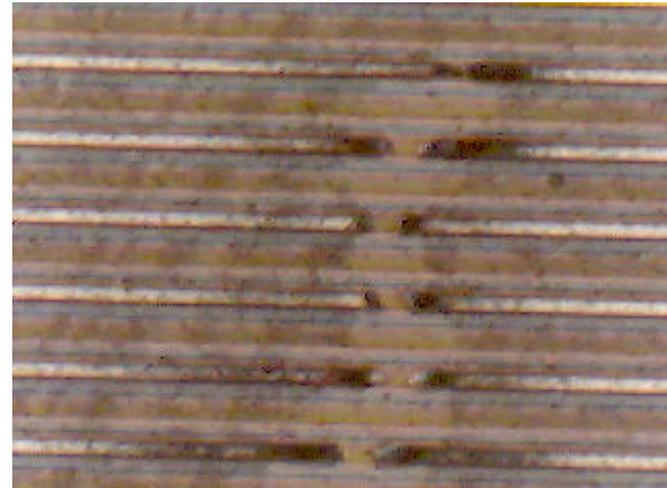
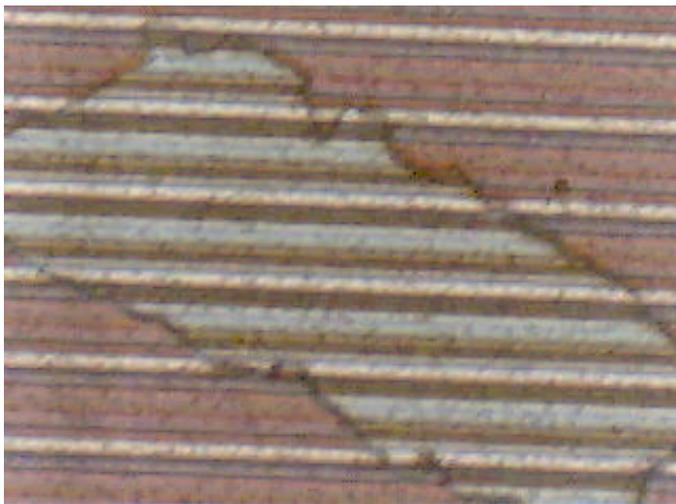
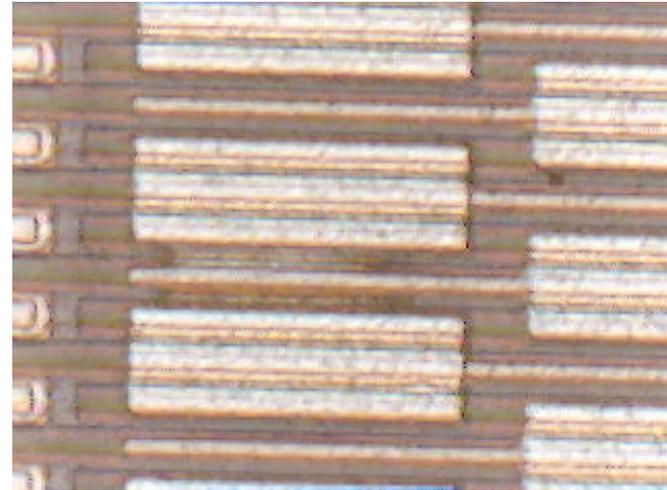


Problems





Problems



12/12/02 Run2B Si Tracker Workshop

Michael Merkin - Moscow SU